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Mr. Heintz's Boulevard.

ON Christmas Day the late Mayor of this city revealed to the public the outlines of a scheme for a drive-way of unparalleled magnificence, and five or six miles long, for the district north of the Harlem. This so-called boulevard is, in fact, a cluster of wheel-ways and foot-ways, with a possible bridle-path, one hundred and eighty-two feet wide; the two central ones are to be used as speed-ways; two other macadamized roads are for more stately carriage procession and general traffic, besides which there are broad outer sidewalks, with rows of trees separating the tracks. Of course, in a work of this magnitude there are arches and walls and bridges galore, with approaches, viaducts and tunnels, so that the $6,000,000 which is spoken of casually as about the sum of money needed to complete it, is probably a very modest estimate of the expense. Altogether, this contemplated work is one of the highest public importance both in magnitude and expense as well as on account of its influence for good or ill upon the city that is to be.

We do not propose to discuss here the desirability of broad and tree-bordered park-ways or of a road where those who delight in fast trotters can put their horses to speed. But, admitting that a city of the size and pretensions of New York should provide facilities of this sort, what would be the natural, business-like way of going to work to secure them? In the first place, the authorities of an enlightened community would naturally look about for men of expert ability to examine all the possible sites and report upon them. After a large public discussion of the matter, and the selection of a general site, the next step would be to employ some landscape-architect of distinction, a man of well-known engineering ability, to make a careful study of the grounds and give a report. Such a report would not be an essay in elevated language on the coming grandeur of the metropolis, with rhetorical flourishes in the place of specific facts. It would give definite reasons at every stage of the plan; it would show how advantage could be taken of every natural feature, and how elements of use and beauty could be introduced which would never be suggested to the untrained eye. This report would also be subject to the closest scrutiny and the widest discussion, and in this way it would be an education to the people, and would help them to appreciate a work which might be made an object of the noblest civic pride.

What has happened in the present instance is that the site for the boulevard has been privately selected and a complete plan evolved by a gentleman named Heintz. Mr. Heintz may be an estimable citizen, but as he was bred to the business of brewing it is not likely that he has any training which fits him specially for designing park-ways. No person who wished to lay out and construct on his private grounds a path fifty yards long would think of taking counsel with Mr. Heintz, in the hope of receiving advice of any value. Mr. Heintz himself may have taken counsel, but the public has no information as to who was consulted when these plans were developed. So far as taxpayers have been informed, no person known to possess the requisite taste or training, or experience for such work, has given any advice in the matter, and yet leading organs of public opinion in the city at once endorsed this scheme as one which the city should rush through with all possible haste. Some opposition has been manifested by persons who look upon the proposed boulevard as a gigantic scheme of public plunder, but no one seems surprised at this method of conducting public business. Of course, the city wants the best road possible, and yet the chances are a hundred to one that it would be improperly located and badly constructed if the promoters of the scheme were allowed to have their way. The one way to get the best work is to secure the services of the men who know best how to do it; but we have so little regard for expert ability that no one expresses surprise or indignation when a great public work, which deserves the study of the foremost engineers and landscape architects of the time, is planned off-hand by Heintz, or Smith or Jones, or when their crude opinions are at once accepted as the best solution of a great municipal problem.

It is asserted in the newspapers that a bill has been prepared and will soon be laid before the legislature, to authorize the construction of this grand drive-way, and if such a measure is not enacted as promptly as the one for a speed-road in Central Park was passed a year ago the failure will not be due to any objection on the part of our law-makers to this method of administering the affairs of the city. It has been given out officially that the business men of New York are incompetent to conduct the city's business, and an architect is the last man whom a city official would think of consulting in regard to a municipal building. All the training now considered necessary to fit a man for the general supervision of the city's public works is to run of errands for a Mayor or his political creator. A commission from the City Hall is a certificate of ability to design a parkway or park, and if it could be shown that the designer, or his friends, had a personal and pecuniary interest in the work, this would be counted an additional guarantee of his fitness for the job.

A Chestnut-tree in Llewellyn Park, New Jersey.

AMONG deciduous trees of north-eastern America the Chestnut is one of the few which take rank with the White Oak in majesty and dignity of expression. It grows rapidly when young, and although it does not attain its best proportions until it is a hundred years old, still it wears a noble expression long before it reaches that age, and long before the White Oak has assumed the grand air which finally characterizes it. Its top is usually round and dome-like, and is not quite so impressive as the broader top of the Oaks, but its foliage breaks in heavy masses with peculiarly deep and dark shadows, a result of the great horizontal projection of its branches and the wide angles at which they ramify. The foliage is not particularly dense,

but the leaves are large and glossy, and are attacked by few insects. In late summer the light green clusters of burs contrast in a pleasant way with the darker color of the leaves, while in July, when tasseled over with clusters of cream-colored flowers, it is one of the most beautiful of trees.

The tree illustrated on page 19 is not one of the largest size, as it girths only ten feet at five feet from the ground, and its spread of branches is only little more than sixty feet. It is, however, as can be seen, a tree of great symmetry, and as it is in vigorous health it will yet attain much greater dimensions. It stands in Llewellyn Park, in West Orange, New Jersey, in an open field which has been cultivated a hundred years. Elderly men say that it was called a big tree when they were boys, and its fruit was much coveted on account of its size and quality. In the open soil of this part of the country the Chestnut thrives luxuriantly, and many trees much larger than this were once standing in the park and its neighborhood. Little care has been taken to produce strains of our native Chestnut, which yields superior fruit. Several varieties bearing large nuts have lately been disseminated, but they are mostly seedlings of the European Chestnut. In Europe and Asia the Chestnut is an important food-product, and if the time ever comes here when it will be necessary to husband our resources, it will not be strange if varieties are produced which bear more abundantly of larger fruit than any with which we are now acquainted. Besides its beauty as a tree for ornamental planting and its delightful nuts, the Chestnut is one of our most valuable timber trees, so that it will probably be largely planted in the future.

Our illustration is reproduced from one of a series of photogravures of the famous trees in Llewellyn Park.

Notes of a Summer Journey in Europe.—XXII.

THE best and most famous Pinetum in England is said to be that at Bicton, but this is too much out of the way for inspection by the average visitor in London. A more available collection, and one well worth visiting by every admirer of fine conifers or student in arboriculture, is the Pinetum at Dropmore, an estate founded and embellished by the late Lord Grenville, and now owned by Lady Fortescue. It is within easy distance of London, beyond, but within sight of Windsor Castle, and within an hour's walk through a pretty rural road from the station at Taplow. There are carriages to be had at this station, too, for those who prefer to ride.

Dropmore is famous as a beautiful estate, for its Rhododendrons and Azaleas, and, more than all, for its well-developed and old exotic conifers. As one goes through the grounds they everywhere give the impression of being a natural growth, and the effect is extremely pleasing in many respects, although there are doubtless some visitors who wish for more signs of "cultivation" than the present owners have allowed. The natural arrangement and growth of the fine old Rhododendrons and Azaleas and many other shrubs gives the impression that the seed had been scattered by nature, while the introduced trees seem a natural and proper part of the glades and woods, and as we tramp through the ferns and bracken to get at them it is hard to realize that this soil had ever been disturbed by cultivation.

A large part of the territory devoted to trees is a gravelly subsoil, covered by only a very few inches of good soil, while other portions are of just the quality which Heath-plants, such as Rhododendrons, delight in. The climate in this beautiful, wooded section of England compares favorably with any, except the southern portion of the island. Here are large old Camellias, growing and blooming well in the open air, and large old Fuchsias thrive luxuriously, having endured the Dropmore winters for scores of years.

The planting of Dropmore was begun nearly a century ago by Lord Grenville, who evidently had a mania for conifers. After his death Lady Grenville had a care for the trees and increased the collection. But since her death, twenty-five or thirty years ago, and until within a very few years, practically no additions were made to the species already growing on the grounds. Lately many of the newer introductions have been added, and the present head-gardener, Mr. C. Herrin, shows much interest in the care and preservation of the fine specimens which have come under his charge. No small part of the value of this collection is the fact that the ages of the trees are known and therefore furnish valuable data to the dendrologist and student of forestry.

Almost the only evidence of formal planting of trees is a long avenue of splendid Cedars of Lebanon, eighty or ninety years old, planted twenty-five feet apart and fifty feet between the rows. These trees average considerably over eighty feet in height, with trunks eight or ten feet in circumference. The largest tree of this kind on the estate, planted just a hundred years ago, is over 100 feet high, with a girth of trunk of over fifteen feet. A Deodar Cedar, in fruit, planted in 1840, is seventy-two feet in height and nearly ten feet around the trunk. One of the prides of the estate is a Douglas Fir, Pseudotsuga taxifolia, about a hundred and twenty feet high and having a stem twelve feet around at several feet from the ground. It is a splendid example of the adaptability of this evergreen of our Pacific Coast region to the soil and climate of many parts of Europe. This specimen was raised from some of the seed originally sent over by David Douglas when he was collecting in the region of the Columbia River for the Horticultural Society of London. It was sown in 1827, and in 1830 the plant was transferred to the spot where it now stands. Some years ago its top was broken by a winter storm, or its height to-day would have been greater. In these sixty years it has made an average annual growth of fully two feet in height and has yearly added four-fifths of an inch to the diameter of its trunk. Of course, there are other conifers which make quite as much annual growth, but very few maintain the average for so long a time. Specimens of our Big Trees (Sequoia gigantea), planted thirty and thirty-five years ago, are respectively over sixty and nearly seventy-five feet high, while the circumference of their trunks at five feet above the ground is as great as that of the Douglas Fir just mentioned. The trunks of the Sequoias, however, are always very large at the base and taper rapidly toward the top. It seems to be characteristic of the Sequoias in cultivation that when they get to be as old as these they begin to lose much of their beauty of form, the lower branches becoming bare and straggling in appearance. It seems to be the opinion of some people who have carefully observed the growth and development of these trees in England, that they are not destined to attain the grand proportions or long life of the parent trees in California. Certainly most of those which came under my observation did not look very promising, considering that it is not yet forty years since the first seed was brought to England, and that the trees, although fruiting, must be regarded as comparatively in their infancy. When young they make handsome pyramidal or cone-shaped specimens.

A Redwood (Sequoia sempervirens), planted in 1845, is over seventy-three feet in height, ten feet around the trunk, and is a handsome specimen, with a full supply of branches to the ground. Among the true Firs, one of the finest here, as it is also in its native habitat, is the so-called Red Fir, Abies nobilis, which was introduced to England by the same indefatigable collector who secured the Douglas Fir, and probably from nearly the same region. This specimen was planted where it now stands in 1837. It is seventy-one feet in height, has smooth, slaty-gray bark, and branches which sweep the ground. Abies grandis, said to have been planted in 1861, is fully seventy feet high. Abies Cephalonica, planted six years later, has reached the same height; while the peculiar and interesting Spanish Fir, A. Pinsapo, planted at the same time as the Cephalonian, forms a fine symmetrical tree, measuring sixty-six feet.

The Spruces do not appear to be so well represented as the Firs, but among them were noticed Picea Sitchensis, which, planted just fifty years before, had reached a height of seventy-three feet, with a circumference of trunk of eight and a half feet, while a very handsome tree of P. Morinda (also known as P. Smithiana), from the Himalayas, spreads its branches over a diameter of nearly forty feet, and is more than sixty feet in height. It was planted in 1843. As is characteristic of the species, this specimen has long, graceful, pendulous branchlets, which suggest a Weeping Willow. This is another tree too tender to withstand New England, or, at least, Boston, winters without generally receiving great, and often fatal, injuries. Even at Washington, where specimens may be seen on the public grounds, they do not appear to be at home or thrive as well as they should.

Quite a number of species of our western and south-western Pines have developed into fine trees. Among them might be mentioned such species as Pinus Lambertiana, P. ponderosa, P. insignis, P. muricata, P. tuberculata, P. Monticola and others. The tree which is said to be P. insignis, planted in 1839, is now ninety feet high, with a trunk diameter of nearly four feet; Lambert's Pine, planted in 1843, is considerably over seventy feet in height, with a girth over eight and a half feet, while a

handsome P. ponderosa, which was planted in the same year, is fifteen feet shorter, and the circumference of the trunk almost two feet and a half less.

In just thirty years from its introduction on the estate, our western Tsuga Mertensiana has become a handsome tree, sixty feet high. In England this beautiful Hemlock most commonly passes under the specific name of Albertiana, a name given by Murray in honor of the late Prince Consort, and one which, like Wellingtonia for the Sequoia, it is hard for the English mind to abandon.

Probably a large proportion of the visitors to Dropmore find most interest in, and their curiosity most awakened by, the odd-looking Chili Pine, or Monkey Puzzle trees (Araucaria imbricata), which grow here in fine shape and freely produce their enormous fruits or cones, while we in a lower latitude in northern America regard them almost as greenhouse-plants. The cones take two seasons to mature, and in this sheltered place they produce good seed. The pollen and fruiting catkins are produced on different trees, and I was told that the male or pollen-bearing trees are more vigorous than those which bear fruit. There are many of the trees planted here, the largest, placed in the collection in 1830, is sixty-eight feet high, with a trunk approaching nine feet in circumference. They are handsome symmetrical trees, many of these being clothed with a full supply of branches to the ground.

Arnold Arboretum. *J. G. Jack.*

The Coast Dune Flora of Lake Michigan.—I.

I HAVE occasionally received letters of inquiry regarding plants which grow by the shores of the Great Lakes and aid in keeping the loose sands in place. These questions mainly come from persons interested in park sites which overlook the water, and under conditions like those on the shores of Lake Michigan. The shifting sand must be fixed so that damage by the wind and water can be prevented, and a comparative waste changed into a place of beauty. Nature has succeeded in clothing the sand-hills with vegetation where the shallows have been filled with earth and the shore-line has been driven back. Forest-conditions have been established where the White and the Gray Pine, the Red Cedar, the Black, the Scarlet, the Bur and the White Oak grow side by side. Scattered among the trees are many desirable shrubs and herbaceous plants, and what nature has done may with greater certainty be effected under the intelligent direction of man. The vegetation of the sands shows a variety on the ridge nearest to the shore, or on the coast dune, and along the beach, where plants are exposed to the most adverse conditions. They offer an instructive lesson of the way in which plants fulfill their mission and furnish beauty throughout the year.

The Grasses are among the first plants to gain a foothold, and give a chance to seedling shrubs and trees to spring up. A common one is the Sea Sand-reed (Ammophila arundinacea). It is known in Europe as the Marrum Grass, and is planted in coast dunes to keep them in place. It is found along the Atlantic coast, and the harbor and town of Provincetown are said to owe their preservation to it. Adventitious roots spring from the joints as the sand is heaped about the stem. These roots may extend thirty or forty feet, and form a net-work in the loose earth. The clusters of rigid stems have narrow leaves, and rise two or three feet above the surface, and its broom-like structure fits the grass admirably to catch and hold the drifting sand. It has a stiff and formal habit, bearing a thick spike of flowers, and can only be commended for its usefulness. The allied Calamagrostis longifolia has a similar root habit, though the roots do not spread so extensively. It is from three to six feet high, with an open panicle, in marked contras twith the dense spike of the Sea Sand-reed. The long leaves are rigid below, but taper almost to the fineness of a thread, and, with the panicle, are moved gracefully by the wind. Panicum virgatum is of kindred character. It is four or five feet high, and has long flat leaves and a large and very open panicle a foot or two long, which at length neatly bends the culm by its weight. In place of the Elymus arenarius of the Old World, planted for the same purpose as the Marrum Grass, we have the Wild Rye (E. Canadensis), and its variety, glaucifolius. This has broad flat leaves and a large nodding spike, five to ten inches long, furnished with long and spreading bristly awns. These grasses are light green in color, the variety of Elymus being so glaucous as to have a whitish look. Farther north, by the shores of Lake Michigan, are two kinds of Agropyrum—A. repens, the common Couch Grass, and A. dasystachyum. The former appears to be indigenous by the shores of the upper lakes. The latter is very glaucous, but has narrow involute leaves. Elymus mollis, more like E. arenarius, being Reed-like in habit, has the upper part of the culm and thick, erect spike velvety pubescent. All the Grasses mentioned are perennials, and spread mostly by running root-stocks, and readily propagate by their division.

The Willows are the most common shrubs in the sand-ridge along the shore. Seven kinds are represented, but the prevailing forms are Salix glaucophylla, S. adenophylla, S. cordata, S. longifolia and S. lucida. They are not equally common, but wherever established one seems to thrive about as well as another, though the last two, perhaps, require a more moist location. These Willows are generally from two to six feet high and grow in dense clumps, largely due to their mode of spreading, so that where one is in possession of the ground the others are mostly excluded. But the shrubs in contiguous masses exhibit a pleasing variety of foliage, and when the leaves have fallen the glossy stems and buds are bright objects in the winter landscape. The color of the leaves varies from the light but shining green of S. glaucophylla to the rich, glossy green of S. lucida. In shape they range from the narrow, nearly linear leaves of S. longifolia to the broad and neatly tapering ones of S. lucida.

Three species of Cornus share in the work of retaining the sand: C. stolonifera, C. Baileyi and C. sericea. Their habit of spreading by subterranean shoots and stems adapts them to this purpose, and their cleanly appearance makes them handsome for summer or winter decoration. The shapely leaves are prominently veined, and when interspersed with bunches of white flowers, and white or pale blue fruit, the plants are always delightful, while their red or purple stems are equally pleasing in the winter.

The Sand-Cherry (Prunus pumila) is sometimes seven or eight feet high, but is more helpful in holding the sand when but two or three feet high and growing in a tangled mass. The branches rise from a trailing or prostrate stem, furnished with smooth, thickish leaves, lustrous green on the upper surface, paler beneath. When massed the bushes form handsome clumps, and their attractiveness is increased by the profusion of white flowers and the dark red or blackish fruit. The drupes are sometimes as large as Morello cherries, and the larger ones are juicy and have a pleasant, acid taste. Another shrub, Rhus aromatica, the Aromatic Sumach, also spreads freely in the sand, the stems rising from two to five feet, clothed with pretty trifoliate leaves, and red, hairy fruit.

Two trailing or creeping shrubs, Arctostaphylos Uva-ursi and the prostrate form of Juniperus Sabina, spread their matted stems over the sand and efficiently shield it from the wind. The stems of the Creeping Juniper are frequently six or eight feet long. Both plants are good protectors at all seasons, since they retain their leaves all winter. The leaves of the Bearberry are tinged with various shades of purple and red in the winter, and the plants make pretty groups of variegated color as they lie on the slopes of the dunes. Both shrubs are seen on the side of the sand toward the beach, and their long stems may reach down to where the water laves them when the waves run high.

Some taller shrubs and arborescent species are able to exist, or even flourish, on the coast sands. The Hop-tree (Ptelea trifoliata) is occasionally found, and is especially ornamental when the branches are hung with bunches of wafer-like fruit. The Sassafras forms a shrub or low tree of straggling habit. Even plants rarely seen outside of swamps, or by their borders, obtain a footing and present a curious mixture of species. We come across the Button-bush (Cephalanthus occidentalis) close by Smilacina stellata, which is not uncommon even on the highest dunes, growing by the side of Artemesia Canadensis or Solidago humilis.

Englewood, Chicago, Ill. *E. J. Hill.*

Botanical Notes from Texas.

A RIDE of one hundred miles north from Waco brought me to Dallas, the capital of Dallas County, and one of the larger cities of Texas. The city is about 700 feet above tide-water. It lies in the valley of Trinity River and in the midst of the finest farming lands of the state. The valley of Trinity River was evidently an inlet or bayou of the older Gulf, which in later times the upper Trinity chose to convey its waters to the present Gulf. Lying wholly within the "black lands," the river is nearly destitute of sand-bars and has a leisurely flow. It is deeper, even here, than its width would indicate, so that during most of the year it might probably be utilized for light navigation from Dallas to the Gulf.

It is said that there are no Live Oak trees in this county—conditions of soil, not of climate, preventing—this species not

liking the waxy soils of the Trinity bottoms nor the finely comminuted chalky limestone of the higher lands, yet the Oak genus is well represented in the county. The Bur Oak (Quercus macrocarpa), Scarlet Oak (Q. coccinea), Durand's Oak (Q. Durandii), Shinn Oak, Post Oak (Q. stellata), Black Jack (Q. nigra), Chestnut Oak (Q. Muhlenbergii) and Q. cinerea are here. Ulmus, too, is well represented, White Elm (U. Americana), Slippery Elm (U. fulva), Winged Elm (U. alata) and U. crassifolia being more or less common. Red Cedar is abundant on the hills, and the common Juniper is often seen. In cultivation the last-named species becomes a handsome little tree.

Of the smaller trees I noticed Ilex decidua, Viburnum prunifolium, Forstiera pubescens, F. acuminata and Sophora affinis, which should be read for S. tomentosa in my notes from Waco. My good friend, Mr. Julien Reverchon, to whom I am indebted for a knowledge of plants of this county, which winter and rainy weather have prevented me from seeing, invited my attention to a way that this species has adopted in order to keep on good terms with its larger neighbors, and under their protection to rise higher in the world than it otherwise could have done. It often grows within a few inches of another tree, and rises among the branches of it thirty feet or more, with a very slim flexible stem, which of itself could hardly stand alone. When standing by itself it is seldom twenty feet tall. It sometimes attains a diameter of six inches.

Silphium laciniatum is common in central Texas as far south as Bastrop. It is the larger Roun-weed of the north, the Polar-plant of the plains. It is the Compass-flower of Longfellow's "Evangeline." The license of poetry is seen in his description of the Compass-flower, as it also is in that of the country. At the time when "Evangeline" was written I should hardly have dared to trust myself alone on the prairies with no other guide but a Compass-flower. It is certain that if our laureate poet could have lived to look over now the beautiful prairies of this western country, supplied with all the arts and appliances of civilization, he would not have called it a desert. The little-known S. albiflorum is also abundant here. It occupies the higher limestone-lands, and much resembles in habit, though less tall and more bushy, S. laciniatum, which likes better the lower and richer soils.

Nelumbo lutea grows abundantly in still waters over most of Texas. It may readily be distinguished from species of Castalia by its larger, centrally peltate, entire leaves. It bears larger flowers than any other North American plant, excepting one species of Magnolia. It is also remarkable for its large top-shaped receptacle, holding in its cells the edible round nuts, and for the great development of the embryonal bud before germination, it becoming foliaceous and green before it leaves its shell. Leaves of it that I measured in Big Sodus Bay, New York, were over three feet in diameter. The species is easily queen of North American water-plants, and it belongs to a family of plant-gods. Such extreme southern plants as Parkinsonia aculeata and Cassia occidentalis still accompany us northward.

When at Victoria I saw a thriving West Indian, officinal Cassia fistula, growing in a garden where it had been raised from a seed. The large, woody pods of this species are sometimes two feet long. The pulp in which the seeds are imbedded is a well-known cathartic. Dallas County has quite a number of native Ferns. Mr. Reverchon has collected here large and handsome specimens of Woodsia obtusa, Pellæa purpurea, Asplenium ebeneum, Pteris aquilina, and of Polypodium incanum. The last is sure of success in the struggle for existence, for when its tastes or its plans prevent it from growing on the ground, it grows on rocks, on logs, on trees sometimes forty feet high, and near the coast it grows in profusion on roofs of buildings.

Callicarpa Americana, French Mulberry, is abundant in this region, extending westward to the San Antonio valley. It lavishes all its beauty upon its fruit, which it makes very handsome, but barely edible.

Homely Verbesina Virginica is very common over most of Texas. It prefers rich, moist soils. It is the Ice Plant of Texas. The cause of the phenomenon that gives to one species its common name does not appear to be well understood. The exudation from the lower part of the stem resembles pressed snow on frost more than it does frozen water. In the specimens which I examined the ice was in flakes, layers or plates, very light, and when pressed in my hand little remained. Roots of this plant are of reputed medicinal value as an astringent.

Liliaceous Androstephium violaceum is often to be met in this region. It is worthy of cultivation. I was first introduced to the species in Comanche County, Kansas.

Stillingia angustifolia is common in sterile places. This species is sometimes used instead of officinal S. sylvatica in the preparation of proprietary medicines. Having heard of no ill effects arising from its use in that way it may be presumed that our plant is at least innocent. Innocency is the great principle to be observed in the preparation of such medicines.

Tall-climbing Cuscuta exaltata grows near Dallas; also, humble Marsilia vestita, floating Azolla Caroliniana, and rare and curious Isoetes melanopoda. I have not observed Astragalus mollissimus, "Loco," in this county. It is, however, abundant farther west. It has a very unsavory reputation; all manners of hard terms have been applied to it; it has even been accused of driving horses, cattle, and sometimes men and women, to insanity and death, and states have paid bounties for its extermination. But after a careful examination of the subject from his own observation, and what he has learned from the stories of cattlemen during extended tours through the extensive region which it inhabits, the writer has reached the conclusion that the common notion, that the use of our plants by live stock produces insanity or other ill effects upon them, must be relegated to the waste-basket of popular delusions. Before an intelligent and honest court it would not be convicted of such offenses, even upon an *ex parte* examination. The same holds in regard to Oxytropis and to all the leguminous so-called "Locos." It may, however, be proper to suggest that the ills upon stock that are attributed to these "Locos" may be produced by species of Ergot (Claviceps), which grow in great abundance upon many grasses throughout the range of our species, Ergot being known to produce insanity and other ills upon live stock and upon people.

Jatropha stimulosa, Bull Nettle, Tread Softly—the common names of this species of extended southern range—indicate somewhat its vicious character. But its large, white calycine leaves are fragrant, and its seeds have none of the poisonous qualities of Castor-beans, which they closely simulate. They are edible and pleasant. In their season they are eagerly sought by boys and by pigs. The boys, in dread of the stinging hairs of the plant, use little sticks to get the seeds out of the pods; the pigs, more patient than the boys, wait for the seeds, of their own will, to drop. The roots of the plant become very large and are sometimes four or five feet long. Pigs feed also upon them.

Throughout central Texas, in early spring, the handsome little Clover, Trifolium amphianthum, displays its red flowers. They, indeed, make the show, but its rarely seen underground flowers produce most of the seed, thus preserving the plant from destruction and keeping it true to its specific character. It seems as though nature was sometimes as bent on preventing cross-fertilization in some species of plants as she is in devising ways to effect that result in others.

Kansas City, Kansas. *E. N. Plank.*

New or Little-known Plants.

Aster turbinellus.

THIS handsome Aster, although well worth a place in any large collection of plants, is rarely found in gardens, and no portrait has ever been published of it previously to the one which is found on page 17 of this issue, made by Mr. Faxon from a plant grown in Professor Sargent's garden at Brookline, Massachusetts, where it was sent many years ago by the late Dr. Engelmann, of St. Louis.

Aster turbinellus produces slender stems three feet or more in height and diffusely panicled above, light green oblong or narrowly lanceolate leaves two or three inches in length, and showy heads of bright blue-violet flowers. It inhabits uplands and prairies from Illinois and Missouri to western Arkansas and Louisiana, and, like all the American Asters, is a plant which can be easily established in the garden and readily increased by the division of the roots.

Cultural Department.

Irises and their Cultivation.—IV.

THERE are so many species, varieties and hybrids of rhizomatous Irises in cultivation that it is impossible to give within reasonable limits of space more than mere suggestions as to those which seem most interesting for some reason, or are of special value in the garden. Considering all points, there is no group of Irises more satisfactory for general culture than the bearded ones, especially the taller forms, such as

Fig. 3.—Aster turbinellus. See page 16.

I. Germanica, I. pallida and the hybrids of various species which are known as German Irises. These plants have the merit of being reliably hardy. They are sturdy, make large clumps quickly, and among them may be found those producing flowers of the rarest beauty, second to no Orchid in texture, coloring or pleasing forms. To some is also given an added charm of fragrance. If cut as they are about to unfold they will open and will prove fairly lasting and most useful and de-

sirable flowers for indoor arrangements. Grouped with their own foliage, there are few flowers more decorative than these Irises.

The first of this group to flower is I. Germanica, light and dark purple forms of which are so common in gardens. The white variety, only less common, which is known to the trade as I. Germanica alba, seems to be of a different type. These Irises do not seem to produce potent seed. I have from Dammann & Company an Italian form under the name of I. Germanica semperflorens, which gave early dark-colored flowers, but it has failed to establish its title to its varietal name as yet. A friend has sent me I. Germanica, var. Amas, but this has not flowered here. I understand that there are several other varieties differing in coloring and stature which are referred to this species. After these follow closely the species I. pallida, I. sambucina, I. squalens, I. lurida variegata, and the hybrids of which they are the parents. Hybrids of these are numberless. They are offered under names by the plantsmen, and it is difficult to make a selection from the lists without including those which are nearly identical. Practically they may be divided into about half a dozen groups, though there are those which are puzzling to determine. If one wished to form a representative collection it would be well to first collect the species named above; also those known as I. neglecta, I. amœna and I. plicata. Having these types, one can refer the hybrids with some success to different groups, and gradually gather a complete collection, avoiding an excess of those colors which may not be considered desirable. I. pallida appears to me to be the handsomest of the Bearded Irises. It is a plant of a stately habit, with rigid, very wide leaves, and stem some two to three feet high, furnished with large flowers, in good form, of a beautiful soft lilac shade. The standards are large and full, and the falls are wide and furnished with a bright orange beard. They are delightfully fragrant. The Dalmatian form of this Iris is considered the best. Hybrids of I. pallida will be found in all collections of German Irises, differing in shades of purple mostly. I. sambucina, I. squalens and I. lurida are responsible for the hybrids with smoky or bronze-tinted forms, which are so odd in coloring. From I. variegata come the forms with yellow standards and brown falls, very effective and striking flowers in the garden. Hybrids of I. neglecta have standards and falls of white, or marked with purple in its various shades, from reddish purple to pale lavender, while the hybrids of I. amœna, with similar falls, are distinguished by white standards. The blood of I. plicata is seen in the beautiful flowers, which have white standards and falls, somewhat crimped and margined with purple.

The dwarf Bearded Irises so far have not awakened much enthusiasm with me as garden-plants, though they have the merit of being hardy and making a formal dwarf edging. The best known ones are I. pumila and its variety alba, of a distressingly impure white. I. Chamæiris has a yellow flower of not a very attractive shade, though there may be better forms than mine. I. Olbiensis, as I have it, bears a purple flower, but there are also yellow varieties. While these may be desired for a collection, handsome dwarf Irises may be found in other sections.

Elizabeth, N. J. *J. N. Gerard.*

Decorative Plants in Winter.

AFTER the season of Chrysanthemums, there is a scarcity of winter-blooming plants for the greenhouse until the natural blooming of spring bulbs; and forethought and care are necessary to provide a supply of decorative plants for use during the winter months. It is not a difficult thing to have Hyacinths and Tulips flowering in pots or pans, and the methods of hurrying them on are generally well understood. But it is a mistake to crowd them into bloom too early, and the results are usually meagre and disappointing. It is far more satisfactory to have a good stock of other plants to carry through until February, when bulbous plants may be had with long flower stems and ample foliage. To fill this void, we grow Linum trigynum to follow the Chrysanthemum. The plants are rooted from cuttings in the spring. These are set out in the summer and lifted in the autumn, beginning to bloom in November. They are brightness itself in the greenhouse. L. trigynum is very susceptible to coal-gas and is liable to the red-spider when grown indoors, but occasional syringing will keep it clean. The more recent name for the plant is Reinwardtia.

The various strains of Chinese Primulas seem to be almost perfectly established; one can obtain seed of a given color of flower and form of foliage and rely on the results almost to a plant; the colors are very rich and the foliage abundant, and it seems almost impossible to improve on the single varieties. The double ones, as obtained from seed, like the double Cinerarias, need a great deal of improvement. It is, indeed, a question if they are desirable, the single kinds are so much more beautiful. To have good large plants of Primulas, the seed should be sown early in spring; about the end of March seems to give the best results if the plants are carefully tended. To obtain plants of the blue variety, which is very pretty by contrast with the others, it is necessary to sow the seed even earlier, as this strain seems to lack the vigor of the other colors. The Chinese Primroses succeed best in the cold frames in summer and may remain there until there is danger of frost and damp; the latter evil is more to be dreaded than cold, but at this period they need the warmth of a greenhouse, where they will soon become gay with flowers. I find there is a tendency with some strains of Primroses to flower during early autumn. This is a decided disadvantage, as the flowers are a very poor color at that time, besides being out of season, and the plants do not give good results in winter, even if the flowers are picked off in summer. The Chinese Primrose seems to flower to a certain extent and then the display is past, and the period is governed by the time they commence. Early flowering may be obviated by the later sowing of those kinds that have this tendency.

Poinsettia pulcherrima, an old and very showy winter decorative plant, is indispensable. There are several varieties of this species, which is a native of Mexico. The double variety, so-called, is very poor as compared with the typical plant; it seems impossible to keep the foliage on, even when the plant is small, and the bracts never make a good display. The white form is attractive, though seldom seen. Old plants of Poinsettias when kept dry, after flowering, may be kept at rest until summer and then cut down and two or more shoots allowed to grow. For most purposes cuttings taken in summer with a heel and rooted any time between May and July, will give plants of various sizes. All of these are useful, as the bracts are much more persistent and durable than the leaves. To make Poinsettias last well in a cut state they should be cut several days before they are needed for use, and the stems immersed in water their whole length, when it will be found that the foliage will not fade when used for decoration, as it will when fresh cut from the plants.

Of berried plants for winter use there is none so valuable as the Jerusalem Cherry, though why this Solanum should be so widely known by this name is a mystery, as the plant is a native of Brazil. The Jerusalem Artichoke is also a native of America. The best strain we have seen is that of Benary's, called Solanum capsicastrum nanum. It is a dwarf compact kind that needs no pinching to make a very compact bush, which is laden with the bright berries in profusion. As decorative plants for the greenhouse they are good for three months, but for the dwelling-house they are not so valuable, as they soon shed their leaves and berries. To have good plants of this Solanum with the least trouble, seed should be sown this month and planted outdoors in June, where they will remain until fall comes, and with it the time to lift and pot such plants. I have noticed that the larger the berries of this Solanum the less freely they are produced, and in this respect this dwarf strain is the best I have ever seen, though the berries are small compared with those of other strains.

South Lancaster, Mass. *E. O. Orpet.*

Some Winter-flowering Plants.

AT this season of the year no brighter place can be found than a greenhouse or conservatory, and, although only a few square feet may be available, each single flower has greater attractions than a whole border full of the same kind in the summer season in the garden. There is no better construction of simple design than a span-roof from twenty to twenty-five feet wide, about sixty feet long, twelve feet to the apex, and five feet six inches on the sides. Such a house is very light, and with twenty-five feet inside there is ample space for side-benches under which to place the heating-pipes, and for a good walk around a central bed raised only six or eight inches above the walk. This bed provides a good place for setting out a few ornamental plants and for the storage of useful Palms and other decorative plants used out-of-doors in summer; it is also a useful and desirable place in which to plant climbers for the roof.

Just now the long racemes of Bignonia venusta, heavily laden with bunches of bright orange flowers, are very beautiful. Another old-fashioned flower, seldom seen and often cramped and starved in a pot, is Euphorbia jacquiniæflora. Planted out it is a revelation; its long wreaths of bright

orange-scarlet, gracefully drooping flowers make it one of the handsomest of winter-flowering plants. Palms, Ficus and Ferns, with their deep green foliage, and Eucharis Amazonica, with spikes of star-shaped flowers of purest white, are all desirable for planting out in the greenhouse; so is the useful and gorgeous Poinsettia pulcherrima, which, planted out, is equally as surprising as Euphorbia. Its enormous bracts of brilliant color are marvelous, and it is most useful as a pot-plant. Grown as dwarf plants, from nine inches to two feet high, in six-inch pots, it will produce bracts twelve inches in diameter. These plants are very useful for parlor decoration, and are in demand at Christmas-time for church and other decorations.

A beautiful tropical feature in a house of this description is now provided by two fine specimens of Musa Cavendishii, each about twelve feet high, with massive trunks and superb foliage and a huge cluster of more than two hundred fruits. These specimens have only been planted out a little more than six months and the growth has been surprising. As a summer climber, Allamanda Hendersoni is quite at home here; also, Antigonon leptopus, with its long racemes of beautiful rose colored flowers. On the benches stock plants of tender varieties for summer bedding can be safely kept, and though it is getting late for such plants as Streptocarpus, Gesnerias and Achimenes, they yet make a very effective display. On wires strung from the rafters, as well as in pots, Cattleyas of sorts will grow and flower satisfactorily; the house will be found suitable for Cattleyas the year round, with slight shading during very hot weather. C. Percivaliana, C. Trianæ, C. Mendelii and C. Mossiæ are unequaled for winter and early spring flowering; C. Percivaliana is at its best during the holidays. Several other varieties succeed admirably in the same house, as do Dendrobiums, Odontoglossums and Cypripedium insigne, which blooms during the holidays and lasts for several weeks. Cœlogyne cristata blooms later on.

Epiphyllum truncatum, commonly called Crab's-claw Cactus, and its varieties are worthy of extended cultivation, blooming as they do in the depth of winter and being very easily grown. At the same time Callas, Bermuda Lilies, Roman Hyacinths and Paper-white Narcissus are also in flower. If a

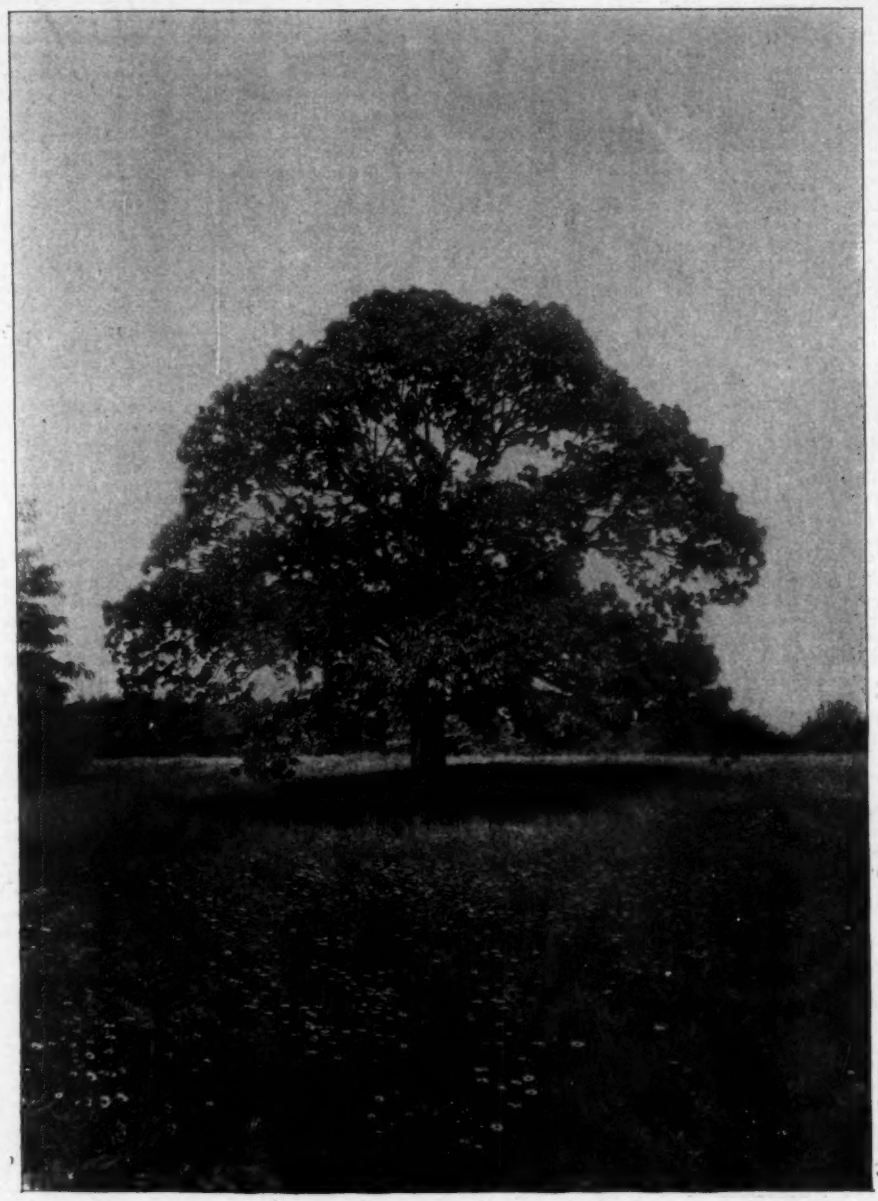

Fig. 4.—The Condit Chestnut, Llewellyn Park, New Jersey.—See page 12.

bench can be spared, Mignonette, such as cannot be grown out-of-doors in summer, may be had in perfection at this season of the year, and no plant is easier to grow. Heliotrope, with its own distinct and pleasant fragrance, is seasonable either as a pot-plant, to be planted out and trained to a single stem, or for covering the walls or the end of the building. The Camellia, once so popular, still deserves mention at this season, since it is worth possessing for its bright glossy deep foliage alone. Chorozema ilicifolia and its varieties are seldom seen, but a plant in flower now always commands attention.

Dongan Hills, N. Y. *Wm. Tricker.*

Mistakes of the Year.

LAST year was a hard one for vegetables. Until the 1st of July there were such constant rains that it was difficult to get crops planted in time or to properly care for them afterward, while the remainder of the season, until well into the autumn, was an almost unbroken drought.

The first mistake was in not being ready to plant as soon as the season permitted. Early in May there was a favorable opportunity for planting Corn, during which the earliest Sweet Corn and a portion of the main crop were planted, but other things interfering, and there being plenty of time under ordinary circumstances, further planting was delayed until heavy rains came on and made it impossible to plant. With Potatoes it was the same. My early crop was planted in April, and yielded finely, but the late crop was checked by excessive rain during the early stages of growth, and never recovered; in fact, we finished planting one field with the dibble in the mud, but might as well have left it unplanted, for the ground packed so hard that the crop amounted to nothing. Thousands of acres of late-planted Potatoes in southern Michigan and northern Ohio and Indiana were in the same condition. I shall hereafter plant all my Potatoes early and push them to maturity as soon as possible, for there is not one year in five here that they can be kept growing through the summer drought and receive the benefit of the fall rains.

The next mistake I recall was an attempt at double cropping. I had a piece of sandy land planted to Melons, and concluded to utilize a portion of it until the Melons needed the ground by growing a crop of Radishes. The Radishes did finely, but the weather being dry the Melon-vines among them received a check from lack of thorough cultivation, so that the crop on that portion of the field was a total failure. Possibly in a wet summer the plan might succeed, but it is evidently a risky one.

Another mistake was in the late planting of Peas. In order to prolong the season, several plantings were made in the latter half of May, and even into June, but none of these yielded anything like a fair crop.

Tomatoes were about the most successful of anything I raised; in fact, nearly half of my early crop was sold before any others from the vicinity appeared in the market. The year has demonstrated more fully than ever the importance for the early crop of setting large stocky plants on well-prepared and carefully selected soil. There was fully three weeks' difference in the ripening of the crop on several sandy knolls and on lower land adjoining. Sun-scald was the most serious trouble I had, and artificial covering of the growing fruit was found necessary to save it. In raising the plants tin fruit-cans, with the bottoms removed and sides unsoldered, were used to some extent, but nothing was gained by their use, though, perhaps, there would have been had the weather been dry at the time of setting; but Tomatoes transplant very easily, and if stocky and well hardened a little disturbance of the roots in transplanting does no particular harm. Nothing was gained by very early planting. A few plants set May 11th ripened their first fruit only a day or two earlier than the main planting, May 30th, after the weather had become warm and settled. Frost did no harm to the early set plants, but they became pinched and blue and required a long time to recover.

Ann Arbor, Mich. *A. A. Crozier.*

Heliotrope.—The cultivation of Heliotrope in pots has not been altogether satisfactory, and last year I concluded to try it in the ground. The house in which it was planted is ten feet wide, with a flue on one side, over which there is a bench, the opposite side being nearly level with the walk. A little of the earth was removed from a section of this bench and replaced by clippings of shrubs. Over this some three inches of coarse manure was thrown, and the whole well covered with soil which had been prepared for potting. When finished the bench was eight inches above the walk, and the Heliotrope was then planted in it. The result was a vigorous growth, with healthy foliage and abundant bloom, while plants in pots on the bench directly opposite lost a large portion of their foliage by rust. With very little attention these plants continued to bloom through the following summer. It was my intention to remove them in early fall and plant a new bed for this winter, but when September came they showed such a vigorous new growth and such promise of bloom that they were allowed to remain, and have been blooming freely through November and December. They still continue in vigorous condition, although they are losing their leaves on the lower portion of the stems. It would, no doubt, have been better to have cut them back near the ground about the 1st of September and to have applied an inch or more of fresh soil. A modification of this plan might be applied to ordinary windows, or more especially to bay-windows, by using boxes not less than one foot square and six inches deep. Jersey Beauty is the most satisfactory variety I have ever tried for general purposes. Fleur d'Eté, nearly white, is a strong-growing variety, with remarkably large foliage, which it holds well, but it does not produce much bloom. Queen of the Violets is a very fine dark variety, which succeeds fairly well, but, like all the very dark kinds, is specially liable to rust.

Mannettia bicolor is another plant which does not always prove satisfactory in pots, and seems to do better planted out. Last spring some plants came up from self-sown seed near one of the supports to our greenhouse, and were allowed to grow and twine around it all summer, reaching the top, which was about six feet high. These plants commenced to bloom about December 1st, and the flowers have continued to increase in number all through the month, so that they are one mass of bloom, and bid fair to increase in beauty for several months to come. This plant is one of the easiest to grow from cuttings, and would, no doubt, have commenced to bloom much earlier if grown in that way. To keep it thick at the bottom several plants may be grown in a box for the window, and the vines may also be trained to run down the supports as well as up. The foliage should not be wet in damp and cloudy weather, as continued moisture is likely to cause the leaves to decay.

Ruellia macranthra.—This is a shrubby plant with foliage like a Justicia, and with monopetalous, tubular, expanded flowers two to three inches across. These are a deep rose-color when first open, fading to pale rose, with a white throat well marked with crimson veins and a large cream-colored blotch on the upper segment. They are very showy, last a long time, and the plant may always be relied on to bloom in December and January if properly treated. It is a very strong and rapid grower, with large foliage, and requires considerable pot-room and plenty of water during the latter part of the season. To prevent it from getting out of reach, it may be started in a moderate-sized (say four-inch) pot for a fair-sized plant, in spring, and kept pinched back till midsummer, when it can be potted on in larger sizes, as it requires. I have one now in a nine-inch pot that produced fifteen stems, all laden with flowers. This plant stands at present three and a half feet high, but it should have had one more shift, as it has lost its lower leaves; it required water so often in its cramped quarters that it did not always get enough. I have some smaller plants which were cut back severely and repotted about September 1st, and they are all that could be desired in foliage, but the cutting was done too late, and most of them will not flower.

Hammonton, N. J. *Wm. F. Bassett.*

Passiflora, Constance Elliott.—One of my favorite climbers is the white Passion Flower, Constance Elliott. It was introduced with a great flourish some years ago, but it now seems to have secured a fixed position on the list of forgotten favorites. No doubt the causes of this are its shyness of bloom and its lack of entire hardiness. It has, however, merits that ought to outweigh these defects. Its habit is peculiarly graceful, its foliage is handsome and is retained later in the season than that of almost any other deciduous climber. In this latitude, our first killing frosts occur about the last of October. From that time on we have occasional spells of freezing weather, with spits of snow and sleet, and cold north winds. About New Year's, winter sets in in earnest, and though less severe than it is farther north, the mercury drops several degrees below zero almost every season. Yet my notes show that this Passiflora has retained its foliage until the 6th of January in the severest winters, and in one instance it kept in full leaf until the 28th of January, when a sharp drop in the temperature brought the leaves in a shower to the ground, while still as green as ever. To me, these deeply cleft, five-fingered leaves, thick and firm of texture, and as deep green and glossy as those of a Myrtle, are quite as beautiful as flowers, and they

are doubly appreciated because they last long after the hardiest outdoor flowers are gone.

The roots are less hardy than the leaves of this plant. North of the Ohio it must have a sheltered location out-of-doors, and the protection of a heavy mulch if it survives the winter, and in the northern tier of states, as an open-air plant, it can probably only be grown as an annual. Even there the case is not hopeless. The vine increases so rapidly from underground runners, that plenty of young rooted plants can be taken up for the house each season, and those, if given good-sized pots, will succeed admirably in the window, festooning it with their rich drapery of foliage, and ready with the coming of spring to be turned into the open borders, where they will grow luxuriantly. As a flowering plant this Passion Vine has proved almost worthless with me. I have tried it in sun and shade, in clay and loam, in soil made rich with fertilizers, and in the virgin mold. The flowers are beautiful, but very rarely produced. And yet we can forgive this in a climber that drapes our piazzas with summer greenness until the snows of winter have set in.

Pineville, Mo. *Lora S. La Mance.*

The Forest.

Hard-wood Timber in the South.

UNDER the title, "Our Remaining Hard-wood Resources," our correspondent, Dr. Charles Mohr, of Mobile, has an interesting article in a late number of *The Engineering Magazine*. After showing that north of the Ohio River Black Walnut and White Ash are for commercial purposes practically extinct, while the better qualities of White Oak are growing scarce, he explains how rapidly our forests are being depleted of other kinds of lumber. In the southern states all the hard woods of the north grow, besides several other kinds of economic importance peculiar to the southern flora. We quote Dr. Mohr's interesting notes on the amount and quality of this timber still standing in the south.

Among the States south of the Ohio River, West Virginia takes the first rank in the wealth of its hard-wood forests. Only twenty-five per cent. of its area has been cleared of them. Nowhere is Black Walnut now more frequently found; nowhere is Wild Cherry, Ash, White Oak, Chestnut Oak or Tanbark Oak more abundant. It is only in the narrow strip along the larger water-courses that these supplies in this state have been largely removed, and only in the more accessible parts that they have been more or less culled. Large bodies remain untouched in the southern valleys and the lower slopes of the mountains enclosing them. By the tenth census it was estimated that 2,500,000,000 feet (board measure) of Yellow Poplar timber were then standing in the valley of Cheat River and its tributaries, and 300,000,000 feet on Shaversfork, besides large quantities of the valuable timber named above, which cannot be driven in the shallow streams, and can only be made available by the construction of railroads. On the upper part of the Little Kanawha River and its tributaries there are large supplies of White Oak yet untouched; in fact, all the country back of the counties fronting on the Ohio River is one vast virgin forest of Oak, Tulip, Wild Cherry, Black Walnut and Sugar Maple, only touched upon along the largest channels of drainage, being yet for the greater part inaccessible. The development of these resources has made comparatively slow progress, but with the increasing facilities for transportation by rail it is certain to make rapid strides within the next few years.

In the report of the chief of the forestry division of the Department of Agriculture, for 1887, the area of Kentucky covered by forest is stated at thirty or thirty-five per cent. The White Oak is the timber most prevalent and most characteristic of the state. Large Tulip-trees and most of the valuable hard woods are found in greater or lesser abundance in the forests of various sections of the state, and in eastern Kentucky; and the region of the Cumberland Mountains is yet almost untouched. The area of 10,000 square miles between the Louisville and Nashville railroad line and the Ohio River has been pronounced by Professor N. S. Shaler to be one of the richest and at the same time most easily accessible hard-wood timber regions in the Ohio valley. In a report by R. C. B. Thruston, made to the president of the Louisville and Nashville railroad in 1887, it was stated that the hard-wood forests of the valleys and the table-lands of the Cumberland Mountains extend over an area of 4,000 square miles, with a stand of timber running from 6,000 to 14,000 feet, board measure, to the acre. The 2,319 establishments of the state, based upon these resources in 1885, were using material valued at $14,576,014, with products valued at $29,446,339. The lumber produced from Oak and Tulip trees by 805 saw-mills in that year was estimated at $4,889,196. Louisville is looked upon as the best and cheapest hard-wood lumber market in this country, if not in the world.

Tennessee, with sixty per cent. of its area still covered by woodlands, possesses a larger proportion of forests of deciduous-leaved trees than any other state. The Commissioner of Agriculture of that state stated in 1884 that 16,000,000 acres of forests in Tennessee remained in almost their original condition. The nature of their timber-growth differs but little from that of Kentucky. The Tulip-tree is found in the valleys in greatest perfection, and nowhere in the United States in greater abundance. Portions of the state are unsurpassed in the quality and the vast quantities of White Oak and Tulip-timber which they possess. In Obion County alone there were in 1887 fifty-five saw-mills with a daily output of 1,000,000 feet of the latter. Tulip-trees from six to seven feet in diameter are not rare; no state has yet a greater quantity of Black Walnut; excellent Hickory abounds; Blue and White Ash, scarce along the high-roads of communication, are yet found in considerable quantities in the remoter districts. In the lowlands along the Mississippi River Red Gum, Tupelo Gum, Cottonwood and Cypress prevail. Nashville is the rival of Louisville as a hard-wood timber market. The black walnut, cherry, ash, tulip, elm and maple received in this market amounted to 30,000,000 feet, board measure, and the amount shipped in 1887 was valued at $80,000,000.

In the mountainous part of western North Carolina are found virgin forests of the most valuable hard-wood timbers, which have become accessible only during the last few years. The table-lands between the Blue Ridge and the Smoky mountains, and the basin of the Tennessee River, bear a heavy and diversified hard-wood timber growth so far but little drawn upon. In the Atlantic states further south and in the Gulf region the hard-wood growth is confined chiefly to the higher levels section; with the swamp White Oak, Red or Sweet Gum, Mockernut Hickory, Tulip, Cucumber-trees, some White Ash, Red Ash, Spanish Oak and Shell-bark Hickory in the lower valleys; and Mountain or Tan-bark Oak, Chestnut and Post Oak on the ridges and table-lands of greatest elevation. Black Walnut is found scattered in the districts least difficult of access. In Alabama the hard-wood timber trees are most frequent in the eastern half of the Tennessee valley, in the wide rivers and the intricate valleys which separate the detached outliers of the Cumberland Mountains, where Tulip-trees of fine growth form the larger proportion, with White Oak, Elm, Willow Oak and Shell-bark Hickory. The timber has been largely cut along the railroad lines intersecting these parts of the state, and of late years a number of smaller establishments, manufacturing wagon-stock and cooperage-stuff in the rough, have been erected in northern Alabama.

The largest body of hard-wood timber in the Mississippi valley, if not the largest in this country, is found in the perpetually damp lowlands between the Yazoo and Mississippi rivers, the unbroken forest covering over 6,000 square miles, unsurpassed in the density of its growth and the great development of the trees which are of economic importance. Here the swamp White Oak, the Spanish Oak, Red Oak, Sweet or Red Gum, Honey Locust, Cottonwood and Sassafras are found in the greatest perfection. In the water-covered depressions, forming shallow lakes, the mighty Cypress rises in the fullness of its development above all other monarchs of the forest. The forests of Arkansas, on the Mississippi and in the valley of the St. Francis and White rivers, with a timber-wealth similar in kind and development to that found on the opposite side of the Mississippi, extend over more than 2,000,000 acres. In the valleys of a higher level in the same state vast quantities of the ridge or upland White Oak and considerable quantities of Black Walnut yet remain almost intact. In similar situations in northern Louisiana and in the uplands of that state and of eastern Texas the forests, together with their growth of conifers, harbor bodies of fine White Oak, Magnolias and White Bay, with some of the other hard-wood timber spoken of.

Immense as the supplies of hard wood in the southern states must appear, there can be little doubt that their depletion will be effected in a period of time scarcely exceeding in length that which witnessed the disappearance of the similar resources once to be found in the north. The timber-lands in the states south of the Ohio River comprise 211,375,000 acres, or forty-one per cent. of the forest-area of the United States. The number of saw-mills in that territory has increased a

hundred-fold since the census of 1880. The next quarter-century is sure to witness an unprecedented activity in the increase of the industries dependent upon the products of the southern forests. Furthermore, a large proportion of the areas now covered by the hard-wood forests will be claimed for the cultivation of crops to which they are so highly adapted.

The spontaneous reproduction of the better qualities of hard-wood timber is limited by obstacles that leave no promise for the future. There are difficulties in natural dissemination due to the nature of the seeds of most of the hard-wood timber trees of economic value, and to the dangers threatening the existence and healthy development of their offspring in the early stages of growth. Under the shade of the original forest-covering, the second growth is to a large degree suppressed or remains stunted; in the open their progeny is exposed to the danger of destruction by fire and live stock, of which but the smallest part escapes, and which is also liable to succumb under the struggle for the possession of the soil with competing species of little or no commercial value. To reproduce successfully the more valuable hard woods the fostering care of man is required; in short, these supplies must be grown. This fact more generally understood, with the comprehension of the heavy and ever-augmenting strain to which in many sections these natural resources are subjected, cannot fail to arouse the intelligent land-owner to energetic efforts in that direction. No other improvement can impart to his possession a more permanent value and insure a more profitable inheritance than the raising of timber on his waste or otherwise unproductive lands, not to speak of the increase of comfort and content resulting from the sheltering cover of the forest in its beneficial influence upon the health and success of his crops.

Correspondence.

Christmas in London.

To the Editor of Garden and Forest:

Sir,—The dullness which has invaded all branches of trade in London this autumn has extended to Christmas greenery. Though it has been what is known as "a beautiful year for berries," there seems little demand for the superb bunches of Holly and Mistletoe which hang about the fronts of all the green-grocers' shops, and a shilling will give you an unwieldy armful of stiff, long holly-boughs, or all of the waxy mistletoe which you can grasp. If you want to find your Christmas decorations all ready-made—and many people must have this perverted taste, or so large a provision would not be made to meet it—you must seek them at the florists', who are all abundantly supplied with formal circlets of the green and the variegated holly-leaves, each having eight bunches of berries regularly interspersed. It needs the holly-wreaths to point the season in these shops, for the window display is bewilderingly indefinite. The Chrysanthemums have held their own bravely, and still appear in good variety, but by their side are all the spring blossoms from the Riviera gardens—pink Anemones and white Narcissus, and sheaves of Mimosa branches. The old prejudice or superstition which kept such blooms as these out of the market until after the New Year has quite disappeared, and one is fain to regret that this is so, for, after all, it is better to preserve to each season its proper flower-harmony, and it is incongruous when a flower-barrow appears out of the gray fog propelled by a blue-lipped man who blows on his chapped red hands to try to warm them, and vainly endeavors to draw his thin coat closer about his bare throat; it is incongruous, I say, to find that this man's merchandise is Tea-roses and Violets, "Roses and Vilets, fresh from the sothe er Frarnce," he hoarsely calls, then blows on his hands again, dances up and down in his ill-mated shoes and looks about forlornly for a purchaser; and he finds but few. There is little superfluity for flowers in most London households this December, little superfluity for anything, so it appears. Even on Friday, the twenty-third, shopping was practicable in the most frequented shops, and a true Christmas crowd has never once been found on Regent Street.

For Christmas church-decoration this year, in London, white Callas and Chrysanthemums were the flowers most used to relieve the greenery, and no especially novel effects were produced. In the management of the green, one misses the wild grace of the New England Lycopodia. The English decorator has little beside stiff material at command, and his results are naturally stiff; boughs and twigs cannot be made to wreathe about pillars like the flowing, straggling verdure of our winter woods. So, at least, it seems to a patriotic American, who is, on the other hand, unwilling to go quite the lengths of the enthusiastic young Australian who bewailed the other day that Christmas came at so inclement a time in England, rather than in the early summer, "just when there are all the loveliest flowers to decorate with, you know; here there's absolutely nothing."

Not much is going on in a floral way, certainly, except, indeed, the great auction sale of the Blenheim Orchids, which was going on the greater part of last week. The young Duke of Marlborough has in truth lost no time in following the precedent set by his father, and dispersing the best that Blenheim held. The late Duke, whose dubious and stormy career closed so unexpectedly the other day, was a great amateur in the quaintest and most human of plants; his son, apparently, does not share this expensive taste. At all events, he at once set about making arrangements for the sale by a well-known firm of London auctioneers of his father's collection, and was himself in constant attendance to watch proceedings. Many people were present on the first day, but the bidding was rather slow. As the sale proceeded the crowd fell off and competition became more lively, and so it went on, till over the ownership of the last lots a few devotees wrangled fiercely. The total realized was between five and six thousand pounds. There were, however, none of those fabulous prices for single plants which have sometimes been obtained in this line. Amateur growers have learned how short a time it takes for novelties in Orchids to become little better than drugs in the market. The plants were all in excellent condition. Forty-five guineas was the highest figure reached in the course of the sale, and twenty-five or even twenty guineas sufficed to purchase some excellent things. To the latter bid fell a Cattleya Mendelii, of the best variety, with eleven sheaths and twenty-six heads (it was stated that three times that sum had been refused for the plant previously), while two specimens of the Blenheim specialty, Cattleya Gaskelliana Blenheimensis, which, though small, were in the most healthy condition, went for six and three guineas respectively, one falling to the agent of Baron Alphonse de Rothschild, who was a considerable purchaser. Nearly all the leading papers here have devoted editorials to this sale.

London. *Louise Dodge.*

A New Year's Awakening.

To the Editor of Garden and Forest:

Sir,—The outdoor garden has been rather more of a dreary waste than usual at this season. The earth has been steadily frozen during December, giving no chance to the most venturesome plant to make advances. I have before said that it is usually possible to have flowers from the open in this latitude every month in the year, and this could be said almost without qualification if December were excepted. The chances of this being a close season are, I find, about even, for, with the short days, dull skies and prevailing frosts, the winter-flowering plants make little progress. That they have, however, made some progress was demonstrated in the very first days of the year in one of those sudden changes which make the hardy garden so interesting. The temperature, which had ranged below thirty degrees so long, advanced on Sunday (New Year's Day) to an average of forty-one degrees, with a maximum of fifty degrees, accompanied by an abundant rain, which only ceased in the evening. On Monday the temperature was the same, with a bright, clear sky, and, the ground having been softened for a few inches, many plants bounded forward as if loosened from a leash. Snowdrops, of course, needed but a look from the sun under such conditions, and one variety, an Albanian one, fully showed its white dewdrops. Elwes' variety was only slightly less backward, while Scillas, Chionodoxas, Zygadenas, Anemones and some of the reticulated Irises as suddenly became visible. The only Daffodil to show itself was the Campernelle. The mossy Sedums and various fall seedling plants, as Centaureas, Poppies, Carnations, etc., shook off their dejection and appeared eager for growth. Scilla Sibirica seed exposed in the border germinated, as it usually does, at the first opportunity after the first of the year. Hard weather again and snow quickly called a halt to this activity, and these plants will pass through more seeming hardships before genial spring ends the changes. I do not find, however, that they are seriously harmed by the severe changes.

This incident illustrates as clearly as possible what we are often told as to the quick awakening into life of vegetation in arctic and alpine regions, and is here noted not as new, but to call attention to the fact that, with suitable subjects, we can make our gardens interesting at all seasons. He must be dull, indeed, who does not feel at least interested in the ever-wonderful awakening of plant-life in the early year.

Elizabeth, N. J. *J. N. G.*

The Rose of Jericho.

To the Editor of GARDEN AND FOREST:

Sir,—The account of Jericho Roses in GARDEN AND FOREST of October 26th reminds me that, while passing along Oxford Street, in London, last June, my attention was attracted by a large heap of plants marked "Rose of Jericho," in the shop-window of a seedsman. The plant was, however, not the Anastatica Hierochuntica, usually called by that name, but a Selaginella. I entered the shop and found that what, on closer examination, proved to be Selaginella Pringlei, was done up in boxes with a descriptive circular, as enthusiastic as it was botanically inaccurate, and sold at a shilling each. On suggesting to the dealer that his much-lauded plant did not come from Palestine, but probably from America, he admitted that "it might have come from Mexico." It appears that the sale of the Selaginella was large.

Cambridge, Mass. *W. G. Farlow.*

Cedrela Sinensis.

To the Editor of GARDEN AND FOREST:

Sir,—In your issue of November 15th (page 543) Mr. Jack writes about Cedrela Sinensis in France. I have grown these trees a dozen years or more and distributed them in considerable quantity, so that it must have been tested in many parts of the United States.

The Cedrela is a very beautiful tree, and succeeds admirably in Washington. It has somewhat the appearance of an Ailanthus; it is exceedingly vigorous in growth, giving luxuriant shoots with fine, large, clean, pinnated leaves. I have never known the foliage to be infested with insects or injured in any way. The tree grows rapidly and transplants easily. Some specimens have been planted in one of our Washington streets, where they succeed well; and the intention is at an early day to plant a street with this species, and I have no doubt in the near future it will be largely used for this purpose.

Washington, D. C. *John Saul.*

Recent Publications.

Along New England Roads. By W. C. Prime. New York: Harper & Brothers.

This neat little volume is a reprint of letters written to the New York *Journal of Commerce* in the course of a correspondence which has extended over more than forty years. They are, for the most part, casual records of vacation journeys among New England hills, and, in the author's judgment, ought to have been left in oblivion. Finding, however, that they had been preserved by admiring strangers who threatened to publish them if he did not, he has gathered together the long-buried sketches and made them into a book "simply because he did not wish that such a book should be made."

This preface disarms criticism and leaves to the reviewer only words of praise; and yet the sketches hardly need any such protection, for slight as they are they furnish pleasant reading for a leisure hour, and, in addition to heir restful vacation air, they have a charm often lacking in a more ambitious work—the crowning charm of spontaneity. Mr. Prime has that love of country life which only attains its best development when implanted in childhood. If genuine, it never fails, but grows stronger and sweeter with advancing years. In his journeys over the familiar ground, Mr. Prime's eye rests with delight upon the little homely details which would escape the notice of the careless traveler, and his delight we cannot help but share. Only one to the manner born could have written this: "Nearly a half-a-mile ahead stood a farm-house with its barns and outbuildings. The house stood back from the road among fruit-trees, some of which were in blossom. But what especially attracted attention was a large number of horses and wagons, vehicles of various descriptions, which made the front yard and the road near the house look black. Only two events in the country are likely to cause such a gathering around a house. When you see it you are quite safe in thinking that there is a funeral or an auction sale. Either is sure to bring together all the wagons of a very widespread population. There is this difference, however, that to the funeral men and women and children come, but to the 'vandue' only men." The words are simple, the scene is homely, but every reader whose childhood has been passed amid rural surroundings will feel the chords of memory touched, and be transported at once into the happy past, to smell the earthy fragrance of the trampled grass, and hear the merry jests of the auctioneer, while friends and neighbors, unthought of for years, come trooping into the chambers of memory.

This, too, is genuine: "Deserted farm-houses in New England are all alike in the most prominent features and generally resemble each other in many minute details, for the life in them was very much the same, and the life in the house gives specific character to the surroundings. The worn spot on the little piazza of the kitchen end, or L, is again and again visible; the spot where the farmer sat down daily for a little while when he took the very short rest the farmer can afford to give himself in daylight. The marks on the inside of the window-seat are almost always there, made by the broken mugs and teapots, and the cans and boxes in which his wife kept her flowers growing when frost drove them indoors for the winter. Her garden is always there, and I know a place where I go and gather roses, sometimes, from bushes in a dense tangle, which were the garden Roses of a farm-house that utterly vanished more than fifty years ago."

Combined with this simplicity of thought and feeling is an old-time flavor, a subdued and softened Puritanism, very refreshing in these days of enervating luxury. No matter how far afield Mr. Prime may wander, either literally or metaphorically, in his search for recreation or adventure, he travels always "along New England roads." He is at one with Mr. Ruskin in his detestation of railroads, which he says have "cursed and depopulated northern New England. Carriage-travel has been abandoned, intercommunication between outlying farms and villages is nearly at an end. The old social intercourse and mutual dependence of the country-folk is mostly gone." With this loss of the old-fashioned "neighborliness" has died much of the charm of country life, and what is true of New England is equally true of other sections of the country.

"Seeking a Better Country" is an attempt to show how order and beauty may be wrought out of ruin and desolation in the many abandoned farms if only the inhabitants will give up their thirst for riches and cultivate once more the almost forgotten virtues of their forefathers, for now, as in the olden time, it is only by patient, loving labor, both of hand and brain, that the waste places of the earth can be made to rejoice or the wilderness to blossom as the rose.

Many of the papers contain slight sketches of New England village-life, but the best are those which treat of the beauty of the hills. Much of the modern love of natural scenery is only another form of dissipation—an effort to escape from the heart-weariness of our artificial city-life—but Mr. Prime's enjoyment of his spring and autumn drives is deep and genuine. The letters were written in the days before the love of nature had become the fashion; when only those in whom the love of her beauty was an unconscious passion sought her solitudes to gain refreshment after vigorous toil, or strength for fresh endeavor; hence the slight descriptive touches, scattered at random throughout the volume, have a freshness of feeling in marked contrast to the work of those observers of nature who have a conscience on the subject, and seem always seeking for effects. What can show more delicate appreciation than this?

"Snow is a wonderful beautifier. It packs down the dead growth of the past, so that the first show of the new growth is visible and colors the earth and the landscape. There is a day when all the country looks wintry; the next day soft green tints show in the damp hollows or on the southern slopes; then in one or two or three days the whole landscape has become brilliantly green; the forests have begun to color. We all know the gorgeous autumnal colors, but little has been written of the exquisite tints of the spring forests in New England. They are often quite as beautiful as the autumn glories. They are softer tints, but more varied—pink, mauve, purple and gray, in broad and gentle gradations, broken now and then by deep tints when the Maple is budding. Sometimes in valleys where Willows are plenty, and when sunlight falls richly after a shower, there are patches of golden-yellow stretching across green fields which are as beautiful as one's golden dreams."

This, too, is exquisite in a different way: "As we began the up-hill journey we came slowly into thinner mist, and after a while into that most weird and solemn of all lights, the golden atmosphere of the October sun in fog among autumn forests. Stopping the horses on a water-bar for a little breath, we listened to the silence. Do you know what that means? It is not listening to nothing. There are sounds, and many of them, but in the stillness of a foggy morning these sounds seem to cut sharply into the silence, and thus make you aware of the excessive stillness and calm which reign around you. The fall of a single leaf, broken off by the weight of moisture, is distinctly audible as it flutters to the ground. The voice of a crow, far away in the fog, comes through the yellow air with a metallic ring. You start along, and the crush

of the wheels in the gravel is echoed from the side of the woods across a hollow, so that you think there is a waterfall over there. You stop again, and the echo dies away with a low murmuring along the trees, and the stillness is wonderful."

Mr. Prime has traveled in many lands, but nowhere does he find nature so rich, so varied or so beautiful as in the heart of his own New England hills.

Notes.

Good Carnations have never been so abundant in this city as they are now.

The *American Florist* has a flash-light picture of a Mushroom cave inside of the artificial mound under the great dome of the Horticultural Building of the Columbian Exposition. The bed was spawned October 4th and has been bearing for some weeks Mushrooms of the finest quality and in great abundance.

In former times Live Oak was used largely in naval construction, and our old war-ships had their frames and planking principally of this wood, so that a web of historical sentiment and romance has been woven about the tree. The wood is still used to a considerable extent in building ships, but its value has increased largely on account of the diminished quantity now available.

In 1738, Mr. Menzies, of Culdares, Scotland, brought a few small Larch seedlings, which had been secured in the Tyrol, and planted eleven of them at Blair-Athol. These were the first Larch-trees planted in Scotland, and two of these, which are still standing, are now more than one hundred feet high and in good health. The trunk of the largest one girths eighteen feet nine inches at three feet from the ground.

Yellow Callas are becoming plentiful. After Richardia Elliotti appeared another one was exhibited under the name of Richardia Pentlandi. Still later another one from Africa, which was said to have been found in a swamp with other water-plants, was sold at auction in London under the name of Pride of the Congo. Richardia aurata, a name suggesting another yellow flower, is now announced from France, and is said to be a garden-hybrid produced by a nurseryman of Marseilles.

In the last number of the *American Agriculturist*, Mr. J. S. Woodward argues against the abundant use of stable-manure or nitrogenous fertilizers in vineyards, as tending to produce a rapid growth of long-jointed and soft wood. A moderate growth of well-ripened wood is much more certain to give abundant fruit of the highest quality. Bone-dust or other phosphates, together with unleached hardwood-ashes or potash in some form, make the best application to insure strong, short-jointed and well-ripened canes.

At the last meeting of the general committee of the National Chrysanthemum Society of England, Mr. Taylor presented a report on the cut blooms that were staged at the Society's exhibition last fall. Two lists were presented, showing the number of times each variety was exhibited. The ten flowers of the Japanese section, which were exhibited the greatest number of times, were listed in the following order: Avalanche, Viviand Morel, Sunflower, Ed. Molyneux, W. H. Lincoln, Etoile de Lyon, Stanstead White, Gloire de Rocher, Florence Davis, Monsieur Bernard. The first ten of the incurved sorts were these: Princess of Wales, Empress of India, Lord Alcester, Jeanne d'Arc, Queen of England, Lord Wolseley, Golden Empress, Violet Tomlin, John Lambert, Miss N. A. Haggas.

Some forms of farm-fences harbor a great many insects, and the old worm-fence, made of rails, with its wide margin of neglected ground, takes the lead in this respect, although followed closely by the stone-wall and the hedge. In a paper read before the Biological Society of Washington, and republished in *Science*, Mr. F. M. Webster says that even the post and board fence, although its ungrazed margins are narrower, offers much protection to various kinds of insects, as is made plain by the number of cocoons and eggs that can always be seen where the boards and posts come in contact. Among the principal species which are fostered in this way are the chinch-bug, which winters under a covering of leaves or matted grass, the army-worm, the larvæ of the stalk-borer and grasshoppers. The fall web-worm delights to pass its adolescent stage in the crevices about rail-fences and stone-walls, and where in field-corners or in the angles of a worm-fence Raspberry and Blackberry bushes are allowed to grow, the root-borer, the saw-fly, and, worst of all, the author of the gouty-gall of the Raspberry (Agrillus ruficollis) will find harbor. Where mulleins grow among the briers, the tarnished plant-bug will pass its winters in comfort, and altogether the fence-corner is a veritable nursery, where injurious insects are propagated to the injury of neighboring gardens, orchards and fields.

Thomas Hogg, for many years one of the best-known and most highly respected among the horticulturists and botanists of the country, died suddenly of angina pectoris on the 30th of December last, in this city. His father, whose name was also Thomas Hogg, was ardently devoted to horticulture and had charge of the greenhouses belonging to William Kent, Esq., of London, who had the largest private collection of plants then in England. In this situation he became intimate with Macnab, of Edinburgh; Aiton, of Kew; Pursh, Goldie, Don and other collectors of note. Thomas Hogg, the younger, was born in London on the 6th of February, 1820, and was brought to this country by his father when only nine months old. In the spring of 1822 Thomas Hogg, senior, took a piece of ground in this city where Twenty-third Street and Broadway now meet, but which was then quite out of the city, and commenced business as a nurseryman and florist, the only other nurseries then about New York being those of Messrs. Prince, of Flushing, and Floy and Wilson, in this city. In 1840 the nurseries were removed to Seventy-ninth Street and the East River, and here young Thomas Hogg and his brother James, who had been brought up to the business, assisted their father and took charge of the very flourishing establishment at his death in 1855. In 1862 Thomas Hogg received an appointment from President Lincoln as United States Marshal, under which he went to Japan, where he remained eight years. He then resigned, and after a short visit to America he returned to Japan late in 1873 and remained there for two years longer in the customs service of the Japanese Government. His close relations with the authorities gave him opportunities for exploring the islands which other foreigners did not possess, and he collected many plants and seeds of horticultural value and sent them home. We hope at some future time to give a complete list of these introductions which made Mr. Hogg eminent among the collectors of garden-plants. The garden of his brother at the foot of Eighty-fourth Street, in this city, where most of these treasures were cultivated for the first time in America, was, for many years, the most interesting spot in the United States to the lovers of Japanese plants. Many of the very best trees, shrubs and herbaceous plants which have come to us from Japanese gardens, were thus brought to America before they were sent to Europe, and not a few of them are now among the most familiar inhabitants of our gardens. In 1875, Mr. Hogg left Japan the second time, and afterward traveled through China, Ceylon, South America and Central America. Later in his life he went to California, and to Europe several times. His last journey to Europe was made two years ago, and while in Paris during an exceptionally severe winter he was attacked by the influenza, and never fairly recovered from its effects.

During the latter years of his life Mr. Hogg was engaged in no business and devoted his leisure to his favorite studies. His investigations took a wide range, and he was recognized as an authority in many branches of horticultural science and practice. In person Mr. Hogg was tall and spare, but well-knit and muscular, with a strong but refined face and great dignity and gravity of manner. He was almost shrinkingly modest, but in congenial company was one of the most agreeable of companions. He was never married, but was singularly devoted to his sister and brother and the members of their families. His integrity was above any suspicion; and the purity, sincerity and unselfishness of his life commanded the respect and won the affection of every one with whom he came in contact.

Catalogues Received.

D. S. Grimes, Denver, Col.; Wholesale Price List of Seeds of Rocky Mountain Conifers.—Pitcher & Manda, United States Nurseries, Short Hills, N. J.; Beautifully Illustrated and Descriptive Catalogue of New and Rare Seeds, Bulbs and Plants.—Sherwood Hall Nursery Co., 427–429 Sansome Street, San Francisco, Cal.; Illustrated Catalogue of Selected Flower and Vegetable Seeds, Bulbs, Roses, Decorative Plants, Fruit and Ornamental Trees.—J. M. Thorburn & Co., 15 John Street, New York; New Annual Descriptive Catalogue of Flower, Vegetable and Tree Seeds.—B. M. Watson, Plymouth, Mass.; Wholesale Price List of Bulbs, Hardy Decorative Flowering Shrubs, Ornamental and Fruit Trees, etc.